Normal distribution calculator

Enter mean, standard deviation and cutoff points and this calculator will find the area under normal distribution curve. The calculator will generate a **step by step** explanation along with the graphic representation of the area you want to find.
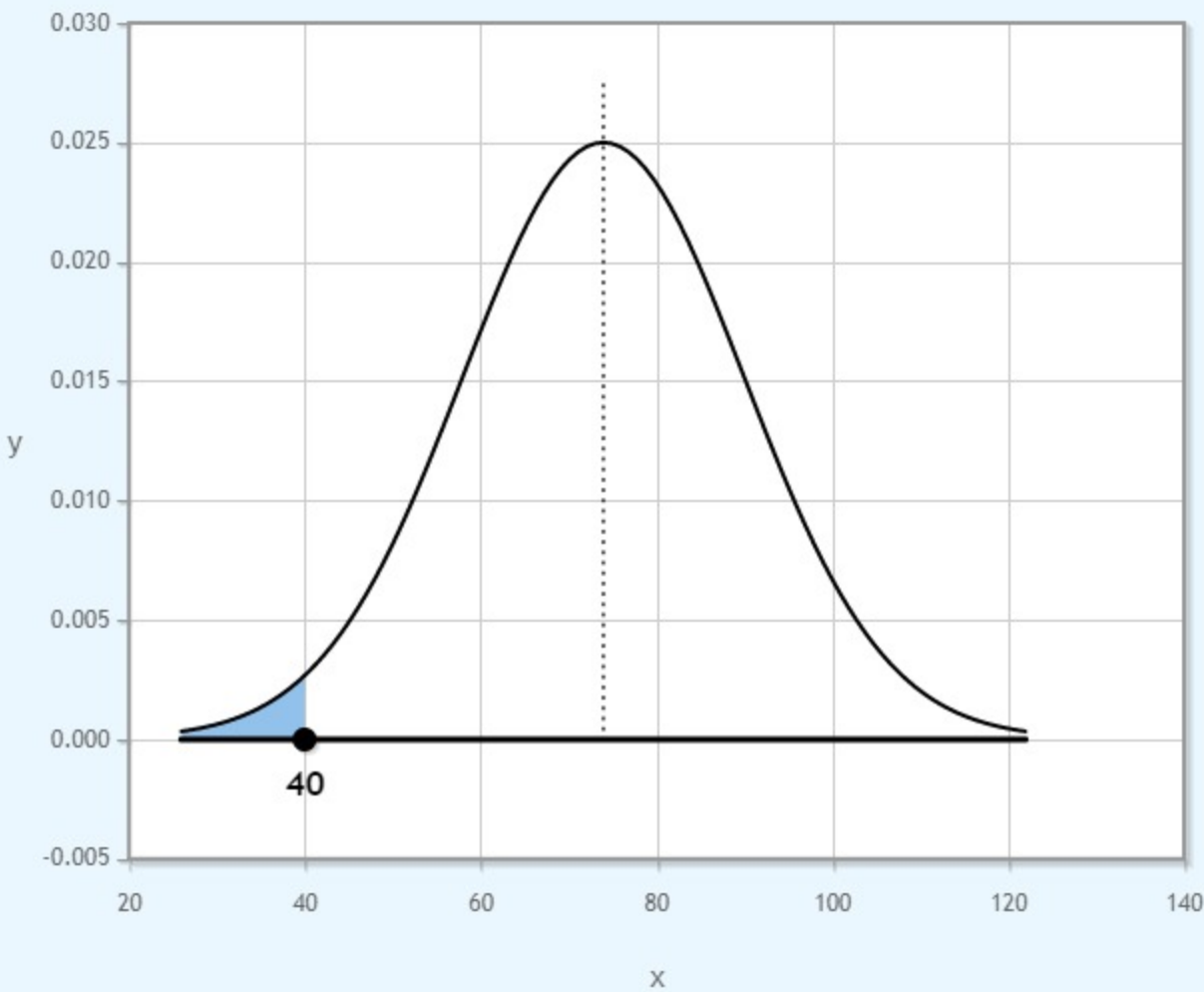
solution

$$P(X < 40) = 0.0166$$

explanation

Step 1: Sketch the curve.

The probability that $X < 40$ is equal to the blue area under the curve.

Step 2:

Since $\mu = 74$ and $\sigma = 16$ we have:

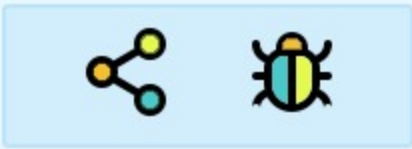$$P(X < 40) = P(X - \mu < 40 - 74) = P\left(\frac{X - \mu}{\sigma} < \frac{40 - 74}{16}\right)$$

Since $\frac{x - \mu}{\sigma} = Z$ and $\frac{40 - 74}{16} = -2.13$ we have:

$$P(X < 40) = P(Z < -2.13)$$

Step 3: Use the standard normal table to conclude that:

$$P(Z < -2.13) = 0.0166$$

Note: Visit Z - score calculator for a step by step explanation on how to use the standard normal table.

Normal Distribution Calculator

find the area under normal distribution curve

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If X is a normally distributed variable with mean $\mu =$ [74] and standard deviation $\sigma =$ [16] find one of the following probabilities:

○ $P(\,\boxed{} < X < \boxed{}\,)$

○ $P(X > \boxed{}\,)$

● $P(X < \boxed{40}\,)$

$\mu = 74$
$\sigma = 16$

Area = ?

☐ Hide steps

[Compute]